

## QUESTIONS FREQUENTLY ASKED ABOUT HEPATITIS B

### What is hepatitis B?

Hepatitis B is a serious public health problem that affects people of all ages in the U.S. and around the world. In 2006, an estimated 46,000 people contracted hepatitis B virus (HBV) infection in the U.S. Hepatitis B is caused by a highly infectious virus that attacks the liver and can lead to severe illness, liver damage, and in some cases, death.

The best way to be protected from hepatitis B is to be vaccinated with hepatitis B vaccine, a vaccine used in the U.S. for more than two decades and proved safe and effective.

### Who is at risk for HBV infection?

About 5% of people in the U.S. will get infected with HBV sometime during their lives if they are not vaccinated. You might be infected with HBV and not even know it. If you engage in certain activities, your risk might be much higher. You might be at risk if you

- have a job that exposes you to human blood
- share a household with someone who has chronic (lifelong) HBV infection
- inject drugs
- have sex with a person infected with HBV
- are sexually active but not in a long-term, mutually monogamous relationship
- are a man who has sex with men
- received a blood transfusion before 1975, when excellent blood testing became available
- are a person who was born, or who has a parent born, in Asia, Africa, the Amazon River Basin in South America, the Pacific Islands, Eastern Europe, or the Middle East

- were adopted from Asia, Africa, the Amazon River Basin in South America, the Pacific Islands, Eastern Europe, or the Middle East
- have hemophilia
- are a patient or worker in an institution for developmentally challenged people
- are an inmate of a correctional facility
- travel internationally to areas with moderate or high rates of HBV infection

### How is HBV spread?

HBV is found in the blood of people infected with the virus and certain of their body fluids, such as serum, semen, and vaginal secretions. HBV is not found in sweat, tears, urine, or respiratory secretions. Contact with microscopic amounts of infected blood can cause infection.

### Hepatitis B virus can be spread by

- unprotected sex
- injection drug use
- an HBV-infected mother to her child during birth
- contact with blood or open sores of an HBV-infected person
- human bites from an HBV-infected person
- sharing a household with a person with chronic (lifelong) HBV infection
- sharing items such as razors, toothbrushes, or washcloths
- pre-chewing food for babies or sharing chewing gum
- using unsterilized needles in ear- or body-piercing, tattooing, or acupuncture
- using the same immunization needle on more than one person

### Hepatitis B virus IS NOT spread by

- casual contact, like holding hands
- eating food prepared by an infected person
- kissing or hugging
- sharing silverware, plates, or cups
- visiting an infected person's home
- sneezing or coughing
- breastfeeding

### What are the symptoms of hepatitis B?

Most babies and young children who get HBV infection don't look or feel sick at all. About half of adults who get infected don't have any symptoms or signs of the disease. If people do have signs or symptoms, they might experience any or all of the following:

- loss of appetite
- nausea, vomiting
- fever
- weakness, fatigue, inability to work for weeks or months
- abdominal pain
- yellowing of skin and eyes (jaundice)
- joint pain
- cola-colored urine
- clay-colored stools

### I'm not in a risk group. How did I get HBV infection?

Many people don't know when or how they got the infection. When they get the results of a blood test indicating they've been infected with HBV, they are taken by surprise. Studies have demonstrated that about 15% of people who acquire hepatitis B are unable to identify a risk factor that explains why they have the disease.

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## Do people usually recover from HBV infection?

About 95% of adults recover after several months. They clear the infection from their bodies and become immune. This means they won't get infected with HBV again. They are no longer contagious and cannot pass HBV to others.

Unfortunately, about 5% of adults and up to 90% of children under age 5 years are unable to clear the infection from their bodies and develop chronic HBV infection.

## How do I know if I have or have had HBV infection?

The only way to know if you are currently infected with HBV, have recovered, are chronically infected, or could become infected, is by having blood tests. The three standard blood tests are the following:

**HBsAg (hepatitis B surface antigen):** when this is "positive" or "reactive," it means the person is currently infected with HBV and is able to pass the infection on to others.

**Anti-HBs [sometimes written as HBs-Ab] (antibody to hepatitis B surface antigen):** when this is "positive" or "reactive," it means the person is immune to HBV infection, either from vaccination or from past infection. (This test is not done routinely by most blood banks on donated blood.)

**Anti-HBc [sometimes written as HBc-Ab] (antibody to hepatitis B core antigen):** when this is "positive" or "reactive," it might mean the person has had contact with HBV. This is a very complicated test to explain because the "anti-HBc" can possibly be a "false-positive" test result. Blood banks routinely run an "anti-HBc" on donated blood. The interpretation of this test result, if it is positive, depends on the results of the other two blood tests previously described.

A fourth blood test that is sometimes done is **IgM anti-HBc (IgM class antibody to hepatitis B core antigen)**. When this is positive or "reactive," it means that the person has had HBV infection in the past six months, indicating acute (recently acquired) HBV infection.

## Interpretation of the hepatitis B blood test results

Tests	Results	Interpretation	Vaccination Needed
HBsAg anti-HBc anti-HBs	negative negative negative	susceptible	Yes, for all people who want protection
HBsAg anti-HBc anti-HBs	negative negative positive with $\geq 10\text{mIU/mL}^*$	immune due to vaccination	no
HBsAg anti-HBc anti-HBs	negative positive positive	immune due to natural infection	no
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive positive negative	newly infected	no
HBsAg anti-HBc IgM anti-HBc anti-HBs	positive positive negative negative	chronically infected	no (may need treatment)
HBsAg anti-HBc anti-HBs	negative positive negative	four interpretations possible <sup>†</sup>	possibly <sup>†</sup>

\*Postvaccination blood testing, when it is recommended, should be done 1–2 months after the final vaccine dose.

- <sup>†</sup>1. May be recovering from acute HBV infection.  
2. May be distantly immune, and the test is not sensitive enough to detect a very low level of anti-HBs in serum.  
3. May be susceptible with a "false positive" anti-HBc.  
4. May be chronically infected and have an undetectable level of HBsAg present in the serum.

## What does it mean if my blood bank said I tested positive for hepatitis B and can no longer donate blood?

If the blood bank told you your test was "positive," it is important to find out which test was positive. If the "HBsAg" was positive, this means that you are either chronically infected with HBV or were recently infected. If only the "anti-HBc" was positive, it is most likely that you either had a "false-positive" test or are immune to HBV infection (had HBV infection sometime in the past). It

is important that you understand the full meaning of your test results. If you are

not sure how to interpret these test results, call your blood bank for an explanation or have the blood bank send the test results to your healthcare provider. You may need to provide written permission for the blood bank to release these results to your healthcare provider. Your healthcare provider may want to repeat the blood tests or perform additional tests such as an "anti-HBs." Bring this information sheet along with you on your visit to your healthcare provider. The blood bank does not usually test for anti-HBs or IgM anti-HBc.

And remember, you cannot get HBV from donating blood because the equipment used during blood donation is sterile.

## CHRONIC HEPATITIS B VIRUS INFECTION

### What does it mean to be chronically infected with HBV?

People who do not recover from HBV infection are chronically infected, usually for life. There are over one million chronically infected people in the U.S. today. A chronically infected person is someone who has had HBV in her/his blood for more than 6 months. While approximately 5% of adults who acquire HBV infection become chronically infected, children younger than age 5 years have a greater risk (up to 90%). The younger the child is at the time of infection, the greater the risk that the child will develop chronic infection. Many babies born to chronically infected mothers will also become chronically infected with HBV unless the babies are given two shots in the hospital immediately after birth—the first dose of hepatitis B vaccine and a dose of hepatitis B immune globulin [HBIG]—and at least two doses of hepatitis B vaccine during the 6 months after

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birth to protect them from the infection. The final dose should not be given before 24 weeks of age.

A chronically infected person might have no signs or symptoms of HBV infection but usually remains infected for years or for a lifetime and is capable of passing HBV on to others. Sometimes chronically infected people will spontaneously clear the infection from their bodies, but most will not. Although most chronically infected people have no serious problems with hepatitis B and lead normal, healthy lives, some develop liver problems later. Chronically infected people are at significantly higher risk than the general population for liver failure or liver cancer.

### How can I take care of myself if I am chronically infected with HBV?

A person with HBV infection should see a physician knowledgeable about the management of liver disease every 6–12 months. The physician will do blood tests to check the health of the liver, as well as test for evidence of liver cancer. It is best for chronically infected people to avoid alcohol because alcohol can injure the liver. Additionally, your physician should know about all the medicines you are taking, even over-the-counter drugs, because some medicines can hurt the liver. If the result of any liver test is abnormal, it's important that you consult a liver specialist.

### If your liver disease has progressed...

If your physician tells you your liver disease has progressed, read the following for some extra precautions you should take.

- Avoid alcohol and medicine that has not been prescribed by your doctor—even over-the-counter medicines.
- Get vaccinated against hepatitis A. Hepatitis A virus infection can further damage your liver.
- Get a yearly influenza (flu) vaccination. Patients with severe liver disease (cirrhosis) should also receive pneumococcal vaccine.

- Don't eat raw oysters. They may carry the bacteria *Vibrio vulnificus*, which can cause serious blood infections in people with liver disease. Approximately 50% of people with this blood infection die from it.

### What can I do to protect others from HBV infection?

People with HBV infection might feel healthy but are still capable of passing the infection on to other people. To protect others from getting HBV infection, it is important to protect them from contact with your infected blood and other infectious body fluids, including semen and vaginal secretions. Sweat, tears, urine, and respiratory secretions do not contain HBV. Transmission of HBV by saliva has only been documented through biting.

### Important DOs and DON'Ts for people with chronic HBV infection

#### DO:

- Cover all cuts and open sores with a bandage.
- Discard used items such as band-aids and menstrual pads carefully so no one is accidentally exposed to your blood.
- Wash your hands well after touching your blood or infectious body fluids.
- Clean up blood spills. Then reclean the area with a bleach solution (one part household chlorine bleach to 10 parts water).
- Tell your sex partner(s) you have hepatitis B so they can be tested and vaccinated (if not already infected). Sex partners should be tested for anti-HBs 1–2 months after the three doses are completed to be sure the vaccine worked.
- Use condoms (rubbers) during sex unless your sex partner has had hepatitis B or has been vaccinated and has had the anti-HBs blood test demonstrating immunity. (Condoms may also protect you from other sexually transmitted diseases.)

- Tell household members to see their healthcare providers for testing and vaccination for hepatitis B.
- Tell your healthcare providers that you are chronically infected with HBV.
- See your healthcare provider every 6–12 months to check the health of your liver with blood tests and liver scanning.
- If you are pregnant, tell your healthcare provider that you have HBV infection. It is critical that your baby is started on the hepatitis B shots (both vaccine and HBIG) within 12 hours of birth.

#### DON'T:

- Don't share chewing gum, toothbrushes, razors, washcloths, needles for ear or body piercing, or anything that might have come in contact with your blood or infectious body fluids
- Don't pre-chew food for babies.
- Don't share syringes and needles.
- Don't donate blood, plasma, body organs, tissue, or sperm.
- Don't take any medicines not prescribed by your doctor, even over-the-counter medicines.

### What are the long-term effects of HBV infection?

Each year, approximately 3,000–5,000 people in the U.S. die of HBV-related chronic liver disease. HBV infection is the most common cause of liver cancer worldwide and ranks second only to tobacco as the world's leading cause of cancer.

### Is there a cure for hepatitis B?

As of this writing, there are several drugs used for the treatment of people with chronic hepatitis B. These drugs usually don't get rid of the virus completely, but may reduce your risk for serious liver disease such as cirrhosis and liver cancer. Check with your doctor to find out if treatment with medication is the right choice for you. Researchers continue to find additional treatments and look for cures for hepatitis B.

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## **Why is hepatitis B so serious in pregnant women?**

Pregnant women who are infected with HBV can transmit the disease to their babies. If babies aren't protected with vaccinations, many of them develop life-long HBV infections, and up to 25% of those who become infected will develop liver failure or liver cancer later in life. All pregnant women should be tested early in every pregnancy to determine if they are infected with HBV. If the blood test is positive, the baby should be vaccinated within 12 hours of birth with two shots, one of HBIG and the other the first dose of hepatitis B vaccine. The infant will need at least two more doses of hepatitis B vaccine by age 6 months. The final dose should not be given before age 24 weeks.

## **How can hepatitis B be prevented?**

Hepatitis B vaccine can provide protection in 90%–95% of healthy young adults. The vaccine can safely be given to infants, children, and adults, including pregnant women. Usually, three doses of vaccine are given over a 6-month period. Hepatitis B vaccine is very safe, and side effects are rare. Since 1982, more than 100 million children, teens, and adults in the U.S. have been vaccinated. Hepatitis B vaccine is our first vaccine that prevents cancer—liver cancer.

## **At what age are hepatitis B vaccines given routinely?**

The hepatitis B vaccine series can begin at any age. For newborns, it's recommended that the first dose be given in the hospital at birth. Hepatitis B vaccine is recommended routinely for all children age 0–18 years living in the U.S. Older children and teens should be vaccinated at the earliest opportunity. Any adult who is at risk for HBV infection or who simply wants to be protected from HBV infection should start the vaccine series right away.

## **Where can I get hepatitis B vaccine?**

Check with your healthcare provider's office first. Children's health insurance usually covers the cost of this vaccine since it is routinely recommended for all children in the U.S. If your child is uninsured, ask your local health department for assistance. The federal Vaccines For Children (VFC) program helps families by providing free vaccines to healthcare providers who serve eligible children. VFC is administered at the national level by the Centers for Disease Control and Prevention (CDC), which contracts with vaccine manufacturers to buy vaccines at reduced rates. For adults, contact your healthcare provider to find out if the vaccine is available and how much it costs. If you are uninsured or don't have a healthcare provider, call your local health department for advice.

## **How many doses of vaccine are needed?**

Three doses are needed usually for the best protection against HBV infection, but protection is sometimes provided from receiving as little as one dose. Hepatitis B vaccine is usually given on a schedule of 0, 1, and 6 months, but there is flexibility in the timing of these injections. As with all other vaccines, if you fall behind on the schedule, you just continue from where you left off. Hepatitis B vaccine will not help or cure a person who is already infected with HBV.

## **What should I do if I'm in a risk group and am not infected with HBV?**

If you are in a risk group for hepatitis B, be sure to get vaccinated! All people in risk groups (risk groups are listed in the second question on this question-and-answer series) should protect themselves from HBV infection. You don't have to "admit" that you have a risk factor to be vaccinated. You simply need to ask to be

vaccinated. Every day you delay getting vaccinated increases your chances of being in contact with this highly contagious liver disease. The problems caused by hepatitis B—liver cancer and liver failure—are too great to take a chance. See your healthcare provider or visit your health department.

## **How does hepatitis B differ from hepatitis A and C?**

Hepatitis A, B, and C are all different viruses that attack and injure the liver, and all can cause similar symptoms. Usually, people get hepatitis A virus (HAV) infection from household or sexual contact with a person who has the infection. Hepatitis C is caused by the hepatitis C virus (HCV) and is spread through HCV-infected blood. Both HCV- and HBV- infections are spread by blood through some of the same activities (e.g., injection drug use). Both HBV- and HCV- infections can cause lifelong liver problems. HAV infection does not. Vaccines to prevent HAV infection are also available. Hepatitis A vaccine won't protect you from HBV or HCV infection, nor will hepatitis B vaccine protect you from HAV or HCV infection. There is no vaccine yet for hepatitis C. If you've been infected with HAV or HCV in the past, it is still possible to get infected with HBV.

## **Where can I receive more information about hepatitis B?**

Contact your local and state health departments for more information. You can also contact the following organizations:

**Immunization Action Coalition  
Hepatitis B Coalition**  
(651) 647-9009  
[www.immunize.org](http://www.immunize.org)  
[www.vaccineinformation.org](http://www.vaccineinformation.org)  
[www.hepprograms.org](http://www.hepprograms.org)

**American Liver Foundation**  
(212) 668-1000  
[www.liverfoundation.org](http://www.liverfoundation.org)

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**Asian Liver Center**  
(888) 311-3331  
<http://liver.stanford.edu>

**Centers for Disease Control  
and Prevention**  
(800) 232-4636 (800) CDC-INFO  
[www.cdc.gov/hepatitis](http://www.cdc.gov/hepatitis)  
[www.cdc.gov/vaccines](http://www.cdc.gov/vaccines)

**Hepatitis B Foundation**  
(215) 489-4900  
[www.hepb.org](http://www.hepb.org)

**Hepatitis Foundation International**  
(800) 891-0707  
[www.hepfi.org](http://www.hepfi.org)

**Parents of Kids with Infectious  
Diseases (PKIDS)**  
(877) 557-5437  
[www.pkids.org](http://www.pkids.org)

### **What is the Immunization Action Coalition (IAC)?**

The Immunization Action Coalition is a nonprofit organization that works to prevent hepatitis B and all other vaccine-preventable diseases in people of all ages. IAC promotes hepatitis B vaccination, screening for all pregnant women, testing and vaccination for risk groups, and education and treatment for people with chronic HBV infection.

IAC relies on financial support from the CDC, corporations, foundations, health-care providers, and individuals to maintain its activities. Financial contributions are always needed, greatly appreciated, and tax-deductible. You can send your check to IAC at the address below or donate online at [www.immunize.org/support](http://www.immunize.org/support).

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[www.hepprograms.org](http://www.hepprograms.org)

